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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,566	08/19/2003	Herbert A. Leupold	CECOM 5472	8162

7590 12/27/2004

U.S. Army Communications-Electronics Command
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EXAMINER

BERNATZ, KEVIN M

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 12/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/644,566	Applicant(s) LEUPOLD, HERBERT A.	
	Examiner Kevin M Bernatz	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
 4a) Of the above claim(s) 1-18,29-43 and 49-52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 19-26,44-48 and 53-56 is/are rejected.
- 7) ☒ Claim(s) 19,21,22,27,28,45,46,54 and 55 is/are objected to.
- 8) ☒ Claim(s) 1-56 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the species: "spherical" in the paper filed October 15, 2004 is acknowledged. Claims 1 – 18, 29 – 43 and 49 – 52 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected specie, there being no allowable generic or linking claim. The requirement is still deemed proper and is therefore made FINAL.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph within the range of 50 to 150 words (37 CFR 1.72). See MPEP § 608.01(b).

The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The

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disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

3. Claim 19 is objected to because of the following informalities: line 2, "are" should be removed. Appropriate correction is required.

4. Claims 21, 22, 45, 46, 54 and 55 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The Examiner notes that claims 21, 22, 45, 46, 54 and 55 merely recite the mathematical equation used to calculate a property, e.g. $M(r)$ in claim 21. However, since no range in values for these properties are claimed, the mathematical equation used to calculate the property adds no additional patentable limitation to the claimed subject matter.

As an analogy, the Examiner suggests considering the situation wherein one applicant claims "a brick having a length and a width", another applicant claims "a brick having a length and a width, wherein the length is measured with a ruler" and a third applicant claims "a brick having a length and a width, wherein the length is determined by submerging the brick in water, calculating the volume of the brick and dividing the volume by the height and width of the brick". If the Examiner placed three bricks presented by the three fictional applicants on a table, there would be no difference in any physical or other characteristics. Hence, no additional patentable limitations are

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added by the recitation of how the measurement is done *unless* a range in properties is also recited (since it is conceivable that different measurement techniques may produce a different range in properties).

5. Claims 27 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claim 28 is objected to because of the following informalities: the variables H and $B^{(t)}$, are used for the first time in the claims and not defined. Applicants are recommended to include the definition of these variables in claim 28. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 20 and 21 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "abruptly" in claim 20 is a relative term which renders the claim indefinite. The term "abruptly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. This rejection can be overcome by removing the word "abruptly" from the claims.

The Examiner notes that claims 20 and 21 form a nested "dependency loop" and are therefore indefinite, i.e. claim 20 depends from claim 21 and claim 21 depends from claim 20. For purposes of evaluating the prior art, the Examiner has interpreted claim 20 as depending from claim 19.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 19 – 26, 44 – 48 and 53 – 56 are rejected under 35 U.S.C. 102(b) as being anticipated by Leupold (U.S. Patent No. 5,216,401).

Regarding claims 19, 21 and 22, Leupold discloses a spherical magnetic field gradient source structure, comprising a plurality of nested concentric magnetic lamina arranged in a layered magnetic sphere (*Figure 6*), said layered magnetic sphere having an outer surface, a pair of opposing poles (*M1 and M2 in element 61*), a radial dimension, *t*, and a center, each of said plurality of nested concentric magnetic lamina being thinner than a spherical radius (*Figure 6*) and having a magnetic charge distribution (*M1 and M2*), a perpendicular magnetic orientation (*M2*) and a variable magnetic strength, *M(r)*, (*inherent in magnetic material*).

Regarding the limitations "said layered magnetic sphere being configured to cancel unpaired negative surface charges from said outer surface", "said variable

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magnetic strength, $M(r)$, varies linearly with a normal distance, r , from said center” and “said perpendicular magnetic orientation and said variable magnetic strength, $M(r)$, generating a uniform volume magnetic charge density, p , for said layered magnetic sphere, a magnetic field, M , perpendicular to said layered magnetic sphere, a maximum spherical magnetization, $M(t)$, and a magnetic gradient with a linear dependence of magnetic field”, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prime facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the Examiner notes that the disclosed product is substantially identical in structure and composition, in that the disclose prior art product comprises a spherical magnetic gradient source composed of nested lamina of magnetic material possessing a perpendicular magnetic orientation, M_2 .

Therefore, in addition to the above disclosed limitations, the presently claimed properties of "said layered magnetic sphere being configured to cancel unpaired negative surface charges from said outer surface", "said variable magnetic strength, $M(r)$, varies linearly with a normal distance, r , from said center" and "said perpendicular magnetic orientation and said variable magnetic strength, $M(r)$, generating a uniform volume magnetic charge density, p , for said layered magnetic sphere, a magnetic field, M , perpendicular to said layered magnetic sphere, a maximum spherical magnetization, $M(t)$, and a magnetic gradient with a linear dependence of magnetic field" would have inherently been present because the Examiner has sound basis for the position that the properties would inherently result from magnetic materials formed into a spherical shape by the use of nested lamina possessing a perpendicular magnetic orientation.

Regarding claims 44 – 46 and 53 - 55, Leupold discloses the claimed limitations for the reasons recited above pertaining to claims 19, 21 and 22.

Regarding claim 20, the Examiner deems that the disclosed prior art product would inherently meet the claimed limitations since the disclosed prior art product is formed of nested magnetic lamina and the claimed limitation is deemed an inherent factor of nested magnetic lamina (*see also Figure 6 which appears to show a variance in each lamina of the magnetization, $M1$*).

Regarding the limitation(s) "magnetic shells" in claim 23, the Examiner has given the term(s) the broadest reasonable interpretation(s) consistent with the written description in applicant's specification as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir.

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1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, the Examiner deems that an lamina-type shape can be construed as a "magnetic shell", provided the material is magnetic. As such, the Examiner notes that Leupold discloses "magnetic shells" (*Figure 6*).

Regarding claims 24 – 26, 47 and 56, Leupold discloses tunnels meeting applicant's claimed limitations (*Figure 6, element 70*).

Regarding claim 48, Leupold discloses magnetic disks meeting applicants' claimed limitations (*Figure 6, e.g. element 64*).

11. Claims 19 – 23, 44 – 46 and 53 – 55 are rejected under 35 U.S.C. 102(b) as being anticipated by Masuyuki (JP 09-232135 A).

Regarding claims 19, 21 and 22, Masuyuki discloses a spherical magnetic field gradient source structure, comprising a plurality of nested concentric magnetic lamina arranged in a layered magnetic sphere (*Figure 1*), said layered magnetic sphere having an outer surface, a pair of opposing poles (*Figure 1 and JPO Abstract*), a radial dimension, t , and a center, each of said plurality of nested concentric magnetic lamina being thinner than a spherical radius (*Figure 1*) and having a magnetic charge distribution (*inherent in magnetic material*) and a variable magnetic strength, $M(r)$, (*inherent in magnetic material*).

Regarding the limitations "a perpendicular magnetic orientation", "said layered magnetic sphere being configured to cancel unpaired negative surface charges from said outer surface", "said variable magnetic strength, $M(r)$, varies linearly with a normal

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distance, r , from said center”, and “said perpendicular magnetic orientation and said variable magnetic strength, $M(r)$, generating a uniform volume magnetic charge density, p , for said layered magnetic sphere, a magnetic field, M , perpendicular to said layered magnetic sphere, a maximum spherical magnetization, $M(t)$, and a magnetic gradient with a linear dependence of magnetic field”, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prime facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the Examiner notes that the disclosed product is substantially identical in structure and composition, in that the disclose prior art product comprises a spherical magnet possessing a North and South pole at opposite radial points, wherein the spherical magnet is composed of nested lamina of magnetic material.

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Therefore, in addition to the above disclosed limitations, the presently claimed properties of “a perpendicular magnetic orientation”, “said layered magnetic sphere being configured to cancel unpaired negative surface charges from said outer surface”, “said variable magnetic strength, $M(r)$, varies linearly with a normal distance, r , from said center” and “said perpendicular magnetic orientation and said variable magnetic strength, $M(r)$, generating a uniform volume magnetic charge density, p , for said layered magnetic sphere, a magnetic field, M , perpendicular to said layered magnetic sphere, a maximum spherical magnetization, $M(t)$, and a magnetic gradient with a linear dependence of magnetic field” would have inherently been present because the Examiner has sound basis for the position that the properties would inherently result from magnetic materials formed into a spherical shape by the use of nested lamina, wherein the magnetic sphere possesses a North and South pole at opposite radial positions.

Regarding claims 44 – 46 and 53 - 55, Masuyuki discloses the claimed limitations for the reasons recited above pertaining to claims 19, 21 and 22.

Regarding claim 20, the Examiner deems that the disclosed prior art product would inherently meet the claimed limitations since the disclosed prior art product is formed of nested magnetic lamina and the claimed limitation is deemed an inherent factor of nested magnetic lamina.

Regarding the limitation(s) “magnetic shells” in claim 23, the Examiner has given the term(s) the broadest reasonable interpretation(s) consistent with the written description in applicant's specification as it would be interpreted by one of ordinary skill

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in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, the Examiner deems that an lamina-type shape can be construed as a "magnetic shell", provided the material is magnetic. As such, the Examiner notes that Masuyuki discloses "magnetic shells" (*Figure 1*).

Conclusion

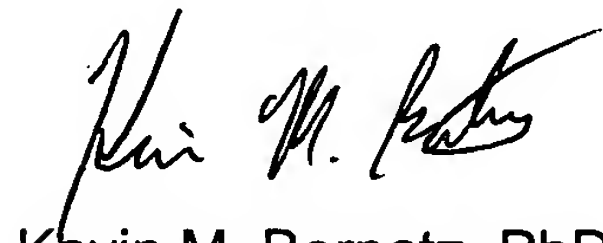
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Engel et al. (U.S. Patent No. 6,579,625 B1) teach a magneto-electronics element formed in the shape of half-spheres or ellipsoids possessing a series of magnetic lamina (*Figures*). Leupold (U.S. Patent No. 5,396,209) and Leupold et al. (U.S. Patent No. 5,337,472) teach spherical magnetic structures similar to the relied upon Leupold reference (*Figures*).

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Kevin M. Bernatz".

Kevin M. Bernatz, PhD.
Primary Examiner

December 23, 2004